

# BIOPHILIC DESIGN: EFFECTS ON YOUTH DEVELOPMENT



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## WHAT IS BIOPHILIA?

‘Biophilia’ is a term that describes the human need to connect with the natural world. This biologically based need for integration with nature is essential for people’s physical health, mental health, and overall well-being. Furthermore, the biophilia hypothesis presents a powerful implication that negative consequences for human health are contingent on whether or not spaces have elements of biophilia. If so, they have the ability to create positive effects physically, psychologically, and spiritually due to that strong connection with nature.

According to the U.S. Environmental Protection Agency, Americans on average spend approximately 90 percent of their time indoors. With only about 10 percent of time spent outdoors, not necessarily surrounded by natural elements, a small percentage of time is spent exposed to biophilia and therefore, those negative effects begin to manifest.

## WHAT IS BIOPHILIC DESIGN?

In order to reverse the negative effects that toxic environments can create, biophilic design generates spaces that reconnect humans to the natural world. This is accomplished by incorporating natural processes into the built environment.

Common examples of biophilic design are providing natural light, direct exposure to plants, animals, and water, and using non-toxic and natural materials. Spaces created with biophilia in mind have the ability to reduce stress, enhance cognitive functioning, and improve mood without taking away from new technological advances in the process. On the contrary, biophilic design often uses new innovations in order to mimic the natural world, for example, lighting systems that act like daylight in that they have the ability to change intensity, color, direction, and quality.



## WHAT DOES BIOPHILIC DESIGN LOOK LIKE?

There are a variety of ways to incorporate and showcase biophilic spaces in the built environment in order to foster human connection with nature. The conceptual model of Redbird Elementary School includes multiple features of biophilic design, such as:

- Natural light
- Natural materials
- Colors from a nature-based palette
- Nature forms and motifs
- Direct exposure to plants
- Nature in the space

Specific ways these features were developed in the structure and overall design:

- Large outdoor courtyard
- Trees and gardens
- Color palette composed of earth tones
- Use of natural and non-toxic materials
- Views of nature in classrooms and public spaces

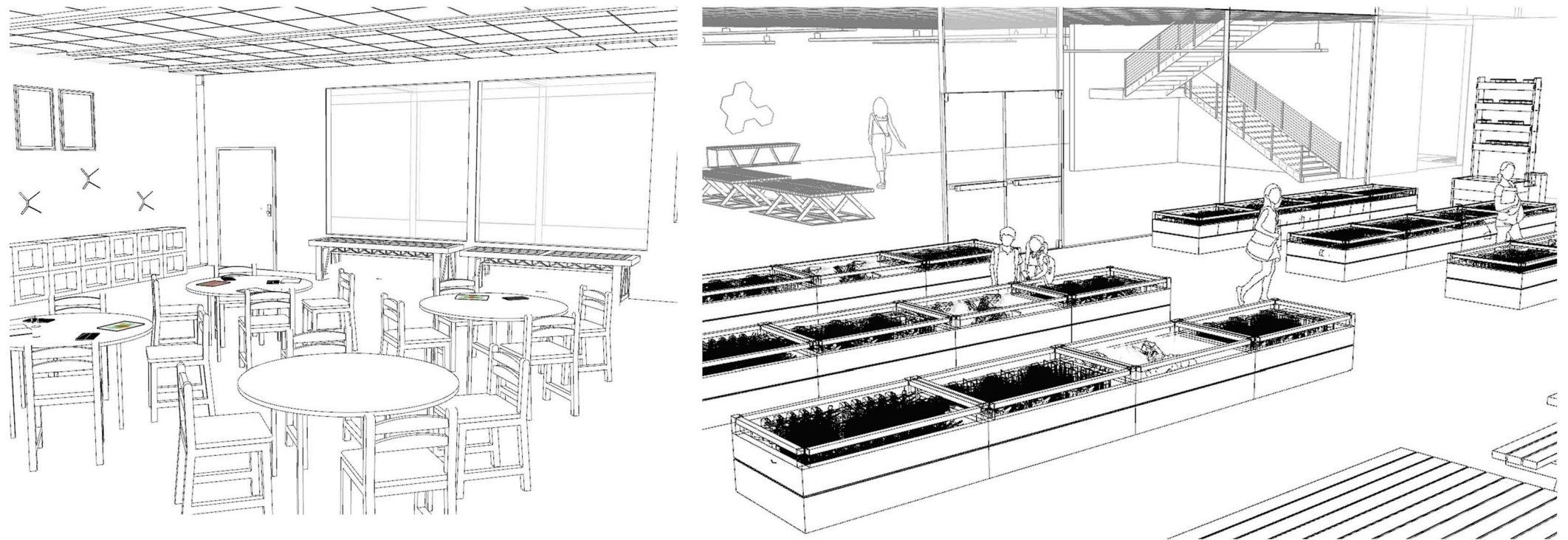


## BIOPHILIC DESIGN & SUSTAINABILITY

Sustainability in design has recently been popularized through necessity. There are many rating systems and certifications available for designers to utilize in order to create green buildings and spaces, such as the Leadership in Energy and Environmental Design (LEED) used in the US. While these are widely used today and cover multiple systems within sustainability, it excludes assessments of building toxicity, physical and mental health impacts, and biophilia. A relatively new concept, Restorative Environmental Design (RED), attempts to combine green design practices that LEED outlines and add elements of human health and well-being. This new concept also encompasses and highlights the fundamental components of biophilia.

## HOW IS BIOPHILIC DESIGN BENEFICIAL TO STUDENTS?

Young children can be easily shaped and deeply impacted by their daily environments - in a positive or negative way. Potential benefits of being in biophilic spaces for example, are increased attention capacity, cognitive function, social creative play, and improved motor skills. Although, without biophilia designed into their spaces, they are at risk brought on by the typical toxic and shielded environment. Children have a natural tendency to embrace biophilia - to explore and bond with the natural world. Due to these organic curiosities and critical developmental opportunities, children must be given appropriate spaces to cultivate those curiosities with and have them integrated with their overall learning curriculum. Studies have shown that the more green spaces in a local area can improve children's cognitive development. These factors also contribute positively to children’s overall mental health. Those surrounded by high amounts of green space during childhood have a 55 percent lower risk of developing a mental disorder. Kristine Engemann from the Centre for Biodiversity Dynamics in a Changing World (BIOCHANGE) explains, "With our dataset, we show that the risk of developing a mental disorder decreases incrementally the longer you have been surrounded by green space from birth and up to the age of 10. Green space throughout childhood is therefore extremely important."



## REFERENCES

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